

NOTEWORTHY COLLECTION

ARIZONA

ECHINOCEREUS CHLORANTHUS Haage subsp. *RYOLITHENSIS* W. Blum & Mich. Lange (CACEAE). — Greenlee County, Big Lue Mountains, 33.1097°, -109.0681° (WGS84), 1,735 m (5,692 ft) elevation, along Coal Creek, 1.9 km west of the New Mexico state line, 22 km ENE of Clifton, 26 January 2014, *M.A. Baker 17873.5 with M.A. Cloud-Hughes* (ASU 289472!). Thirty individuals found within ca. 10 ha, mainly on northeast facing hillsides of rhyolite and basalt in *Pinus ponderosa* P. Lawson & C. Lawson woodland with *Agave parryi* Engelm., *Aristida purpurea* Nutt., *Bouteloua curtipendula* (Michx.) Torr., *B. gracilis* (Kunth) Lag. ex Griffiths, *Cercocarpus montanus* Raf., *Cylindropuntia spinosior* (Engelm.) F.M. Knuth, *Garrya wrightii* Torr., *Juniperus deppeana* Steud., *Muhlenbergia longiligula* Hitchc., *Opuntia phaeacantha* Engelm., *Pinus cembroides* Zucc., *Prunus virginiana* L., *Quercus emoryi* Torr., *Q. grisea* Liebm., *Schizachyrium scoparium* (Michx.) Nash, and *Yucca baccata* Torr.

A chromosome determination of $n = 11$ was made during meiosis of microgametogenesis by M.A. Baker from the same individual and voucher listed above.

Previous knowledge. Blum and Lange (1998) circumscribed populations in New Mexico having five or more central spines, generally reddish spines, and brown flowers as *Echinocereus chloranthus* subsp. *rhyolithensis*. The holotype specimen of *Echinocereus chloranthus* subsp. *rhyolithensis* was collected by Pierce in Lake Valley, Sierra County, New Mexico in 1961 (UNM 25336!).

Blum et al. (2012) listed *Echinocereus chloranthus* subsp. *rhyolithensis* as being present in Arizona based on information from David Ferguson. However, they were unable to locate Arizona sites. A report with photographs of this taxon from the Big Lue Mountains in Arizona was posted to the online forum CactiGuide by a user named Preston Sands in December 2008 (CactiGuide.com 2008–2009). Peter Breslin located plants in the fall of 2013. Böhm and Böhm published observations of *Echinocereus chloranthus* subsp. *rhyolithensis* in Arizona near this locality in 2013; however, that publication did not include specific locality data or a voucher specimen. Another population of this taxon was recently found from the Blue Range Primitive Area of Apache-Sitgreaves National Forest, Arizona, and photographically documented by Owen Lorentzen of Pleasanton, New Mexico.

The holotype for *Echinocereus chloranthus* subsp. *rhyolithensis*, which is currently the only other voucher specimen for this taxon in the SEINet database, is from approximately 140 km ESE of the new record in Sierra County, New Mexico (UNM 25336). The nearest *Echinocereus chloranthus* vouchers to this new record are approximately 20 km NNE in the southwestern corner of Catron County, New Mexico. E. E. Leuck identified these four specimens, collected by P. Pierce in 1967, as *Echinocereus chloranthus* var. *cylindricus* (Engelm.) N.P. Taylor in 1980.

Significance. This is the first vouchered record of *Echinocereus chloranthus* in Arizona, and it confirms previous reports discussed above. It is also the westernmost collection for any of the 14 taxa included in the *Echinocereus viridiflorus* complex, as defined by Blum et al. (2012).

Echinocereus chloranthus is distinguished from other taxa in the *Echinocereus viridiflorus* Engelm. complex mainly by flowers that do not fully open, are not fragrant, and contain substantial orange, brown, and red pigmentation (Taylor 1985). *Echinocereus chloranthus* and its subspecies are also the only taxa in this complex to produce trichomes on the spines (Blum, personal communication). The subspecies of *Echinocereus chloranthus* are distinguished by differing numbers of central and radial spines, as well as differences in habitat and seed structure (Blum and Lange 1998, Blum et al. 2012). *Echinocereus chloranthus* subsp. *rhyolithensis* has more numerous central and radial spines than either *E. chloranthus* subsp. *chloranthus* or *E. chloranthus* subsp. *cylindricus* N.P. Taylor (Blum and Lange 1998, Blum et al. 2012).

Further searches for *Echinocereus chloranthus* subsp. *rhyolithensis* along the border of Arizona and New Mexico, as well as appropriate habitats between the Arizona population and the holotype locality in New Mexico, would provide a more thorough knowledge of the distribution of this taxon. Detailed morphological studies of these and other populations in the *Echinocereus viridiflorus* complex would help continue to elucidate which of the many varieties within this complex are most reasonable in terms of field identification. Until such studies are conducted, it is difficult to assess any potential conservation needs of the cactus.

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NOTEWORTHY COLLECTION

ARIZONA

ROSA STELLATA Wootton subsp. *ABYSSA* A.M. Phillips (ROSACEAE). — Mohave County, Grand Canyon National Park, Cave Canyon (Vulture Canyon), north/northwest-facing section of the canyon, in a roughly 100-meter stretch along the canyon bottom edge extending upwards to base of a cliff face, UTM 12+ 234787E, 3991460N (NAD83) (36.031576°, -113.9434°), with *Atriplex canescens* (Pursh) Nutt., *Bromus rubens* L., *B. tectorum* L., *Ephedra viridis* Coville, *Fallugia paradoxa* (D. Don) Endl. ex Torr., *Ptelea trifoliata* L., and *Rhus aromatica* Aiton var. *trilobata* (Nutt.) A. Gray ex S. Wats., 1,258 m, growing on Kaibab Limestone, about 100 plants present, 25 April 2014, *T. Embrey 170* (GCNP, ARIZ) (NGS Map 2009).

Previous knowledge. *Rosa stellata* subsp. *abyssa* (Grand Canyon rose) occurs in the Grand Canyon region of northern Arizona. Although first described from Twin Point on the Shivwits Plateau, all other known locations occur to the east of there, including locations from the Little Colorado River Gorge and several locations along the Marble Canyon rim. On the south side of the Grand Canyon, *R. stellata* subsp. *abyssa* is only known from Cataract Canyon, Havasupai Point, and Eremita Mesa; this last locality has not been relocated (Brian 2000, SEINET 2014). Locations from the north rim of the Grand Canyon include the type locality, Fishtail Mesa, 150-Mile Canyon, and several localities along Kanab Canyon.

Significance. Cave Canyon (on the south side of the Colorado River) is the last major canyon in the Grand Canyon and directly adjacent to the Grand Wash Cliffs, which mark the end of the Colorado Plateau and the beginning of the Basin and Range region. The type locality (on the north side) is approximately 58 km to the northeast of this new locality, while the nearest known location on the south side of the river (near the head of Cataract

Canyon) is approximately 205 km to the east. *Rosa stellata* subsp. *abyssa* is now known from locations that span the entire Grand Canyon region.

Since *R. stellata* subsp. *abyssa* was described in 1992, several new localities have been discovered, including some of the previously mentioned sites. I examined plants from these new localities to determine the presence or absence of stellately-arranged hairs at the base of the stipitate glands found along the stems, the stipitate glands being, along with the prickly hypanthium, diagnostic for this subspecies (Phillips 1992). The specimens examined, along with their respective localities, include the following: North Rim, overlooking 150-Mile Canyon [stellate hairs absent], *W. C. Hodgson 9821* (ASU0078894); Little Colorado River Gorge vicinity [stellate hairs absent], *D. Roth 1969* (ASU0078895); [stellate hairs absent] *D. Roth 2032* (ASC91662); [stellate hairs present] *D. Roth 2039* (ASC91669); Cataract Canyon (South Rim), [stellate hairs present] *G. Goodwin 1913* (ASC91670); [stellate hairs absent] *G. Goodwin 1551* [ASC86903]; Marble Canyon (eastern Grand Canyon) [stellate hairs present] *B. Hevron 1904* (ASU0078893); Cave Canyon (western Grand Canyon) [stellate hairs absent] *T. Embrey 170* (ARIZ421047).

Although not all extant *Rosa stellata* subsp. *abyssa* specimens were examined, these findings suggest that there is not a geographic correlation for the presence or absence of stellately-arranged pubescent hairs. In the Little Colorado Gorge area, plants collected roughly 2 km apart differed in the presence (*D. Roth 2039*) or absence (*D. Roth 2032*) of stellate hairs. Both Phillips and the current author examined more plants without stellate hairs than with stellate hairs; in his treatment, Phillips (1992) noted that plants from Kanab Creek and Eremita Mesa had less of these stellate hairs than plants from elsewhere in the Grand Canyon. Due to the variability of pubescence in the New Mexico and Texas plants (*Rosa stellata* subsp. *stellata*